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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* FREDERICK A. PARKER

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Appeal 2008-2080  
Application 10/681,748  
Technology Center 3700

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Decided: October 30, 2008

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Before WILLIAM F. PATE, III, LINDA E. HORNER, and MICHAEL W.  
O'NEILL, *Administrative Patent Judges*.

O'NEILL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Frederick A. Parker (Appellant) seeks our review under 35 U.S.C. § 134 of the final rejection of claims 1-4 and 11-14. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We AFFIRM.<sup>1</sup>

## THE INVENTION

The claimed invention relates to a fluid flow control system that precisely controls the fluid flow from a source of the fluid under pressure. (Specification ¶ 003.)

Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A fluid flow control system for precisely controlling fluid flow from a source of fluid under pressure,  
a flow path for coupling said source of fluid to a point of utilization,  
a valve in said flow path,  
a flow restrictor in said flow path,  
a pressure transducer connected across said flow restrictor for measuring the pressure differential thereacross and producing a signal proportional to said pressure differential, and  
a controller connected to receive said signal and pulse said valve at a frequency to obtain a preset target value of pressure across said flow restrictor.

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<sup>1</sup> Our decision will refer to Appellant's Appeal Brief ("App. Br.," filed Nov. 13, 2006), Reply Brief ("Reply Br.," filed Jul. 16, 2007), and the Examiner's Answer ("Answer," mailed May 14, 2007).

### THE PRIOR ART

The Examiner relies upon the following as evidence of unpatentability:

Balazy	US 6,152,162	Nov. 28, 2000
Doty	US 2001/0032668 A1	Oct. 25, 2001
Lowery	US 6,564,824 B2	May 20, 2003

### THE REJECTIONS

The following rejections are before us for review:

Claims 1 and 11 are rejected under 35 U.S.C. § 102(b) as being anticipated by Balazy.

Claims 2 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Balazy, as applied to claims 1 and 9<sup>2</sup>, and Doty.

Claims 3 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Balazy, as applied to claims 1 and 11, and Lowery.

Claims 4 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Balazy and Doty, as applied to claims 2 and 12, and further in view of Lowery.

In response to the Examiner's rejections, the Appellant argues that "the Examiner's mischaracterization of Balazy's pressure regulator as a control valve is erroneous." (App. Br. 6 and see Reply Br. 1.)

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<sup>2</sup> The Appellant and we understand this is a typographical error on part of the Examiner and should refer to claim 11 instead of claim 9. (See App. Br. 4.)

## ISSUE

The dispositive issue is whether the Appellant has shown that the Examiner erred in finding that a pressure regulator satisfies the claimed subject matter of a control valve.<sup>3</sup>

## FINDINGS OF FACT

We find that the following enumerated findings of fact are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. The Specification does not provide definitions for the terms of “valve” and “control valve.”
2. The prosecution history does not disclaim broad definitions of “valve” and “control valve.”
3. A valve is a component in a fluid flow or pressure system that regulates either the flow or the pressure of a fluid. This regulation may involve stopping and starting flow, controlling flow rate, diverting flow, preventing back flow, controlling pressure, or relieving pressure.<sup>4</sup>

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<sup>3</sup> We note that claim 1 does not limit the valve to a control valve. See claim 1, reproduced above.

<sup>4</sup> Peter Smith and R.W. Zappe eds., *Valve Selection Handbook – Engineering Fundamentals for Selecting the Right Valve Design in Every Industrial Flow Application 1* (5<sup>th</sup> Ed., 2004).

4. A control valve is a type of valve that normally respond to signals generated by independent devices such as flow meters or temperature gauges to regulate the flow or pressure of a fluid. Control valves are normally fitted with actuators and positioners to adjust the closure member of the control valve.<sup>5</sup>
5. A pressure regulator is a device used to reduce a variable high inlet pressure to a constant lower outlet pressure.<sup>6</sup>
6. A pressure regulator is a common type of control system. The purpose of a control system is to produce a desired output specified by an input command.<sup>7</sup>
7. Accordingly, a pressure regulator is a control system that takes a variable high inlet pressure and when given an input command produces a constant lower pressure output. Because an input command is a signal to provide an output as a response thereto, a pressure regulator is a type of control valve. In addition, as stated above, a control valve is a type of valve. In other words, a pressure

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<sup>5</sup> Peter Smith and R.W. Zappe eds., *Valve Selection Handbook – Engineering Fundamentals for Selecting the Right Valve Design in Every Industrial Flow Application* 1 and 366 (5<sup>th</sup> Ed., 2004).

<sup>6</sup> Frankel, Michael, *Facility Piping Systems Handbook* 14.71-14.75 (2<sup>nd</sup> Ed., 2002) McGraw-Hill Online version available at: [http://knovel.com/web/portal/browse/display?\\_EXT\\_KNOVEL\\_DISPLAY\\_bookid=605&VerticalID=0](http://knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=605&VerticalID=0).

<sup>7</sup> Kutz, Myer *Mechanical Engineers' Handbook – Instrumentation, Systems, Controls, and MEMS* 383-386 (3<sup>rd</sup> Ed., John Wiley & Sons, 2002). Online version available at: [http://knovel.com/web/portal/browse/display?\\_EXT\\_KNOVEL\\_DISPLAY\\_bookid=1531&VerticalID=0](http://knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=1531&VerticalID=0).

- regulator is a species of control valve and a control valve is a species of the genus of valves.
8. Balazy describes, as a summary of the invention, a system of controlling the rate of a gas flow using pressure regulation as an alternative to an on/off control valve. (Balazy, col. 1, l. 67 to col. 2, l. 1.) However, Balazy does not preclude the use of a control valve. (Balazy, col. 2, ll. 39-46.) Instead, Balazy prefers to use pressure regulation over an on/off control valve (see Balazy, col. 6, ll. 26-28, where in lieu of a four-way valve a manifold system with four on/off control valves could be used). Accordingly, while use of an on/off control valve may not be a preferred embodiment in Balazy, it is an alternative embodiment of Balazy.
  9. Balazy's system preferably uses a pressure regulator to regulate gas flow within the gas flow control module. (Balazy, col. 3, ll. 5-8, Fig.1; col. 5, ll. 26-33, Fig. 3; col. 8, ll. 7-22 and 60-67, Fig. 6.)
  10. Another embodiment in Balazy includes an on/off control valve to control flow through the gas flow control module 12 instead of a four-way valve or a pressure regulator. (Balazy, col. 6, ll. 22-28.)
  11. Balazy describes, in preferred embodiments, a pressure regulator adjusts the pressure of gas upstream or downstream of a flow restrictor based on the pressure drop across the flow restrictor. (Balazy, col. 2, ll. 9-11.) In other words, Balazy describes the pressure regulator adjusting the output of a gas based on the input command of a pressure drop across the flow restrictor.

12. Balazy describes that the input data is continuously monitored and, as a result, that the pressure regulator is continuously adjusted to insure that the actual gas flow through the system precisely corresponds to what is desired. (Balazy, col. 9, ll. 15-26 and 49-60.)

## PRINCIPLES OF LAW

We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). “Absent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification or prosecution history when those sources expressly disclaim the broader definition.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed Cir. 2004).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Anticipation is determined by first construing the claims as we explained *supra* and then comparing the properly construed claims to the prior art. *In re Cruciferous Sprout Litigation*, 301 F.3d 1343, 1346 (Fed. Cir. 2002).



## ANALYSIS

The Examiner's position that Balazy's pressure regulator satisfies the recited valve (claim 1) or control valve (claim 11) limitations is reasonable in view of the fact that the Specification does not expressly define the term "valve" or "control valve" or disclaim a broad definition thereof. *See In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1364; *In re Bigio*, 381 F.3d at 1325. Moreover, the Examiner's position that Balazy's pressure regulator satisfies the recited valve (claim 1) and control valve (claim 11) limitations is reasonable in view of how one of ordinary skill in the art would understand the workings of and relationship between a valve, control valve, and pressure regulator. (Facts 3-7.)

Accordingly, we are not persuaded by the Appellant's arguments that Balazy's pressure regulator is not a control valve and that the Examiner erroneously mischaracterized a pressure regulator as satisfying the claimed subject matter of a control valve. The Appellant supports this argument with a citation to Balazy's summary of the invention (see App. Br. 6). We are not persuaded that this citation to Balazy supports the Appellant's argument for two main reasons. First, the specific portion of Balazy to which the Appellant refers does not support the proposition that a pressure regulator is not a control valve as argued by the Appellant. Instead, that citation only supports that pressure regulation is preferable over the use of an on/off control valve. (Fact 8.) Second, one of ordinary skill in the art would understand that a pressure regulator is a type of control valve. (Facts 3-7.) In addition, while Balazy prefers to use pressure regulation to control the gas flow (see Facts 9 and 11), Balazy describes other embodiments of the gas flow control module that use on/off control valves (Fact 10). A reference is

not limited to its preferred embodiment, but must be evaluated for all of its teachings, including its teachings of non-preferred embodiments. *In re Burckel*, 592 F.2d 1175, 1179 (CCPA 1979). In this case, the use a manifold with four on/off control valves (Fact 10) to control gas flow in the gas flow control module is a non-preferred embodiment within Balazy and, likewise, its teachings are applied to the claimed subject matter and can equally satisfy the claimed subject matter. *See In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) (explaining that patents are “relevant for all they contain”).

The Appellant further argues the Balazy fails to teach or suggest pulsing the valve at a frequency to obtain a preset target value of pressure across the flow restrictor. (App. Br. 9-10.) The Examiner finds Balazy describes this function. (Answer 3 and 6.) We are not persuaded by the Appellant’s argument for three reasons. First, we have reviewed Balazy and are in accord with the Examiner’s finding (see Fact 12). Second, we have found a logical fallacy (error-in-fact) in the Appellant’s argument that a pressure regulator is not a type of control valve as such would be understood by one of ordinary skill in the art (see Facts 3-7). Third, again “[a]bsent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification or prosecution history when those sources expressly disclaim the broader definition.” *In re Bigio*, 381 F.3d at 1325. The Specification does not provide any definitions narrowing the meaning of “valve” and “control valve.” (Fact 1.) The prosecution history does not disclaim a broad definition of “valve” and “control valve.” (Fact 2.) In our view, during prosecution the Appellant wanted the terms “valve” and “control valve” to be broadly defined. To us, Balazy continuously adjusting a valve to insure that the actual flow through the system precisely

corresponds to what is desired falls within the broad definition, the Appellant wanted during prosecution, of pulsing a valve at a frequency to obtain a present target value of pressure across the flow restrictor as claimed.

In view of the foregoing, we will sustain the Examiner's rejection of claims 1 and 11.

For claims 2-4 and 12-14, the Appellant only argues that Doty and Lowery do not cure the alleged deficiencies of Balazy. As such, the Appellant is relying on the arguments that challenge the rejection of claims 1 and 11. Since we found these arguments unpersuasive as to error in the rejection of claims 1 and 11, we find likewise with respect to claims 2-4 and 12-14. Accordingly, we will sustain the Examiner's rejection of claims 2-4 and 12-14.

## CONCLUSIONS

We conclude that the Appellant has not shown that the Examiner erred in finding that a pressure regulator satisfies the claimed subject matter of a control valve. We further conclude that the Appellant has not shown that the Examiner erred in finding that Balazy's description of continuously adjusting a valve to adjust the flow to achieve what is desired satisfies the claimed subject matter of pulsing a valve at a frequency to obtain a target value.

## DECISION

The Examiner's decision to reject claims 1-4 and 11-14 is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

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BACON & THOMAS, PLLC  
625 SLATERS LANE  
FOURTH FLOOR  
ALEXANDRIA, VA 22314-1176